

Reply on Töke's and Schröder's comment on our paper "Statistical nature of multifragmentation" [1]. Töke and Schröder comment [2] on the following points:

1. the wrong citation in [3] of *MMMC* as the Berlin SMM model: "is obviously irrelevant".
2. the use of the binomial fragment distribution in [3] at small excitation energies : "This is irrelevant as singularities in the theoretical Pseudo Arrhenius plot occur at rather high excitation energies. It is more than debatable whether the approximately 400MeV excitation energy, where the calculations of [1] begin, qualify as very small excitation when the fragment production is forbidden by energy conservation."
3. Disregard the effect of the imperfections of the experimental setup (experimental filter) : "...irrelevant..as the used filter in [1] is too strong...the excess E_t in fig.1 of [1] due to an improper inclusion of fission fragments in the definition of E_t , contrary to the experimental definition."

1) We agree with statement 1, but we think a more careful reading and quotation of the literature is certainly useful as it demonstrates how far the authors understand (or not) the theoretical models and their differences, see below.

2) At excitation energy of 2 – 3MeV/nucleon the multifragmentation channels opens, consequently the binomial distribution which ignores this threshold and evidently violates energy conservation is not adequate.

3) Without a discussion of the experimental filter in this context makes an experimental paper like ref. [3] useless for a theoretical interpretation. Of course fission events are there and are suppressed not by the fragmentation mechanism itself but by the detection method (filter). Therefore, our procedure to include it and filter the fission events out at the end seems to us to be the correct procedure.

The discussion of "retrieval of information lost" is vague and makes little sense. We've shown how the filter influences the observed mean values and variances. Of course can the pole in the primary E_t distribution be filtered away.

The following criticism by Töke and Schröder on *MMMC* not to be microcanonical must be due to a misunderstanding: As explained in any detail in both reviews [4,5] *MMMC* observes strictly overall energy conservation and treats every exit quantum state, characterized by a *complete* set of quantum numbers with the same weight. The momenta of the neutrons are integrated over under the constrain of fixed total momentum (cm-momentum) and fixed total kinetic energy within their common cm-system. Therefore, the weight of all neutrons *together* is the volume of all neutrons phase space. This is done separately for the prompt as well for the evaporated neutrons, which are treated as unbound resonances in the

s.p.potential of the fragments. In that respect and some others *MMMC* is different from the Copenhagen SMM model which is semi-microcanonically switches for each selected partition into the canonical ensemble considering neutron evaporation mainly as a slow secondary process (this is discussed in detail in [6] and also by the Copenhagen group in [7,8]).

*A.Botvina and D.H.E.Gross,
Hahn-Meitner Institut,Glienickerstr.100,
D14109 Berlin*

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